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ABSTRACT

This activity booklet contains activities related to the skill category of volume. For each behavior that is to be learned, activities are given for primary, elementary-middle, and secondary levels. Behaviors are categorized by level and are graded, with the easier tasks appearing first. (MP)

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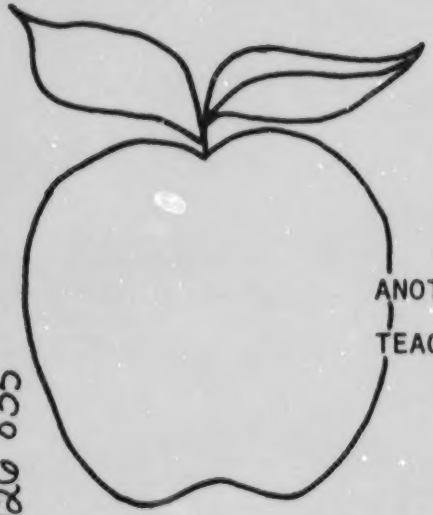
ED179345

ACTIVITY BOOKLET

I. Quantitive

F. Volume



ANOTHER GLRS

TEACHER SUPPORT SERVICE

RESOURCE GUIDE TO APPLIED BASIC SKILLS

BY: CENTER FOR EDUCATIONAL IMPROVEMENT

AND

NORTHEAST GEORGIA CESA

WINTERVILLE, GEORGIA

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Skill Category: Volume

Flow Chart Code: Primary I-F # 1

Behavior: Uses concept of empty.

Primary Activity	Elementary-Middle	Secondary Activity
1. Display boxes, bottles, cans, jars, cups, and glasses showing all empty. 2. Have the children to put empty containers in one pile. Have some containers that are not empty and let children put those in another pile. 3. Relay race. Two team members carry spoonful of water. "Empty" spoon starts over.	Have pupils to bring in empty cans, bottles and boxes of different sizes. Let them label the items "empty".	1. Discussion of empty wallet or billfold or gastanks. 2. Have students collect pictures of empty things. Make into wall chart.

Skill Category: Volume

Flow Chart Code: Primary I-F # 2

Behavior: Uses concept of full.

Primary Activity	Elementary-Middle	Secondary Activity
1. Find cans, glasses, boxes, bottles, cups, etc. Have class fill each one with water, sand, bottle tops, to full level. 2. Bring full box of cookies to share with class. Discuss full box before sharing.	1. Have pupils to bring in cups, cans, bottles, large and small. Fill with water. 2. Find pictures of things that are full. Make a scrapbook.	1. Bring bags of cookies, pork skins, candy and share with class. Discuss "full" as a concept. 2. Collect pictures of <u>full</u> things from magazines.

Skill Category: Volume

Flow Chart Code: Primary I-F # 3

Behavior: Uses concept of handful.

Primary Activity	Elementary-Middle	Secondary Activity
Discuss the meaning of handful. Show class handful of sand, tops, rocks, candy. Have children show handful of things.	Have students pick a handful of marbles. Show by counting the differences in handfuls according to hand size.	Game - money - How many pennies can you hold? See how many pennies make a handful. (Compare relative size of hands.)

Skill Category: Volume

Flow Chart Code: Primary I-F # 4

Behavior: Uses concept of what can be measured by the handful.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class some sand, seeds, rocks, peanuts and candy, and liquids. Discuss with the children that these things can be measured by using the hand and we call it handful. Ask the children to demonstrate by getting a handful of sand, seeds or rocks. Ask children to name which items can be measured by handful. Point out that liquids cannot be measured by the handful.	Make a picture chart of things which can/cannot be measured by "handful".	In a kitchen situation, using recipe items (solids and liquids), have students demonstrate which can be successfully measured by handful.

Skill Category: Volume

Flow Chart Code: Primary I-P # 5

Behavior: Use concepts of glassful.

Primary Activity	Elementary-Middle	Secondary Activity
Show the class a glass. Discuss what the glass is used for, what one can put in a glass. Have children put water in glass. Show them how much to put in to make a glassful.	Using different sizes of glasses, show that a large glassful of water will overflow a small glass, and that a glassful refers to filling any size glass almost to the top.	Have a party. Let students serve the class with cokes, ice or punch, using glasses. Point out that glassful is not quite to top edge. (It would be unwieldy and spill.)

Skill Category: Volume

Flow Chart Code: Primary I-F # 6

Behavior: Uses concept of what can be measured by the glassful.

Primary Activity	Elementary-Middle	Secondary Activity
Name and list things such as milk, water, punch, on the blackboard. Bring in clothes, shoes, books, marbles, water, sand, rice, etc. Ask students to discover which can be measured by "glassful".	Find and collect pictures of common things measured by glassful.	Make a chart. Name things. Put <u>yes</u>, or <u>no</u> if the thing can be measured by glassful.

Skill Category: Volume

Flow Chart Code: Primary I-F # 7

Behavior: Uses concept of boxful.

Primary Activity	Elementary-Middle	Secondary Activity
Build a store - collect cereal boxes, boxes of all sizes and shapes. Talk about how the boxes are full when bought at store.	Bring boxes which are partially filled, and full. Demonstrate differences in part and filled boxes. Ask children to have silent contest: Pick box up and judge "yes" or "no" if it is full or not. Mark answers on a check-sheet.	Let students practice packing books or other objects into boxes of different sizes, to get boxful. Relate to work activity (i.e., packing clerk.) For example, at fried chicken restaurant, 3 pieces make a boxful.

Skill Category: Volume

Flow Chart Code: Primary I-F # 8

Behavior: Uses concept of what can be measured by the boxful.

Primary Activity	Elementary-Middle	Secondary Activity
Have children bring to class boxes of cookies, cornflakes to share with class. Have the boxes open in class and show the class how it looked.	Make a collage of pictures of things which can be measured by boxful.	Ditto sheet. Can these be measured by the boxful? Yes/No Cornflakes _____ Rice _____ Potatoes _____ etc.

Skill Category: Volume **Flow Chart Code:** Primary I-F # 9

Behavior: Uses concept that all containers can hold something.

Primary Activity	Elementary-Middle	Secondary Activity
Have children bring cups, boxes, cans and sacks. Have children tell what each container can hold. Let children put something in each container.	Demonstrate various containers and things they can hold. Collect containers of various sizes. Make a list of things each container can hold. (Don't forget air.)	Demonstrate various things containers can hold. Contest: Show a container. Give 2 minutes for students to list as many things they can that the container would hold.

Skill Category: Volume

Flow Chart Code: Primary I-F # 10

Behavior: Uses concept that most store bought goods come in containers.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in containers from stores. Demonstrate concept. Name some things that come in containers, such as candy, butter, coffee, sugar, can beans, orange juice. Ask students to bring examples of containers from home, and discuss what thing each held.	Take a field trip to a grocery store. Tell students to pick out some small container and purchase. Carry back to classroom and open items. Demonstrate that store-bought goods come in containers.	Take students to variety of stores (hardware, feed and seed) to show that most bought goods have containers. Show that if goods are not in containers, they usually get put into a sack (i.e., a pound of nails or seeds).

Skill Category: Volume

Flow Chart Code: Primary I-F # 11

Behavior: Uses concept of what is appropriate to measure in containers.

Primary Activity	Elementary-Middle	Secondary Activity
Have children name and list on blackboard things that go in different containers. Show bucket, can, bag, etc. Let students try to fit items into containers. Ask: "Could you put a _____ in this?" (Appropriate and non-appropriate)	Demonstrate putting water in paper bags, ice cream in napkin, jello in hand. Point out messes caused by inappropriate containers. Collect pictures of appropriate and inappropriate things for containers. Make a chart to show appropriate contents for specific containers.	Work activity: In a grocery store, bag different items into appropriate size bags.

Skill Category: Volume

Flow Chart Code: Primary I-F # 12

Behavior: Uses concept that size and shape of containers determine what will fit into them.

Primary Activity	Elementary-Middle	Secondary Activity
Find different sizes of container shapes and have things to go into them and let child determine what fits.	1. Demonstrate that size and shape determines what fits, by fitting objects into containers. 2. Relay: Use 2 sets of various containers and objects to fit them. Divide class into teams to see which team can fit together objects first.	Discuss containers and shapes. Make ice in containers to show that containers have different shapes and sizes. Replace shapes into containers to demonstrate concept.

Skill Category: Volume

Flow Chart Code: Primary I-F # 13

Behavior: Uses concept that size and shape of matter will determine if it will fit into containers.

Primary Activity	Elementary-Middle	Secondary Activity
Using a shape box or montessori form board, have students discover which shape fits.	Using various objects and containers, let children try to fit objects into containers. Discuss why things would not fit (because of size, shape).	Using molds and cake pans, pour same amount of batter into each, to demonstrate idea that size of batter and shape of pan will make finished product. Cook to show finished size and shape. Then show that finished cakes will not fit in the other shaped pans.

Skill Category: Volume

Flow Chart Code: Primary I-F # 14

Behavior: Identifies various shapes of containers (round, square, flat, tall).

Primary Activity	Elementary-Middle	Secondary Activity
Bring pairs of round bottles, square boxes, flat bottles and boxes, tall bottles and boxes, short jars and boxes. Make a matching game by letting students choose pairs of like containers.	Make a chart of pictures of shapes of containers. round | square flat | tall	Divide class into two teams. Give each student a list of specific shapes to bring from home, i.e., round flat, round tall, square flat, square tall. Team who brings and labels containers correctly wins.

Skill Category: Volume

Flow Chart Code: Primary I-F # 15

Behavior: Identifies various types of containers (bucket, tin cup, coffee cup, etc.).

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class the following things: buckets, coffee cup, tin cup, cans, boxes. Teach names of containers then ask children to name the containers and tell what each might be used for.	Collect pictures and make flashcards of containers, as well as cards with names of containers. Match names with containers.	Walk around school and teacher identifies types of containers. Given a picture of common containers, student can write name of each.

Skill Category: Volume

Flow Chart Code: Primary I-F # 16

Behavior: Uses concept that some things we measure are dry, and some are liquid.

Primary Activity	Elementary-Middle	Secondary Activity
1. Have teacher to name some dry and liquid things that are measured such as sugar, flour, seeds, corn meal, orange juice, milk, punch, oil, gas, etc. 2. Have children look in magazines. Find pictures of dry and liquid items and make a scrapbook.	1. Bring in samples of dry and liquid and demonstrate differences. Label each as dry or liquid. 2. Make a scrapbook of things we can measure that are dry, and that are liquid.	Make a posterboard of plastic bags containing dry and liquid items. Have students label correctly.

Skill Category: Volume

Flow Chart Code: Primary I-F # 17

Behavior: Uses concept that dry and liquid things are measured by units.

Primary Activity	Elementary-Middle	Secondary Activity
On large jars, let students make arbitrary marks to show units. Mark with numbers 1 thru 5. Pour dry or liquid substances to level of 2 or 3 marks. Have students compare amounts they have measured with arbitrary units. Discuss why some students have more than others. Mention that units provide sameness.	Bring in dry beans and can of coke. Have two like containers and pour coke into one, beans into other. Have discussion of why coke will fit, and beans will not. (Containers are unit of measure being discussed.)	Make pancakes without recipe. Purposefully give ingredients but not amounts. Fail miserably. Ask students why recipe failed. Cook correctly, using recipe with amounts and units.

Skill Category: Volume

Flow Chart Code: Primary I-F # 18

Behavior: Uses concept of cup as a unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Show and label a measuring cup. Fill cup with rice to show we can measure with a cup. Repeat with other materials.	Using cupped hands, demonstrate measuring water, rice, dirt, etc. Give students a cup to show them it is easier to maintain with a measuring cup.	Discuss restaurant serving coffee. Bring in variety of coffee cups and let students fill each. Ask students to determine which amount they would prefer. Discuss why restaurants must use same size cups. Discuss why a cup is used. (Convenience, consistency)

Skill Category: Volume

Flow Chart Code: Primary I-F 19

Behavior: Uses concept of "cupful".

Primary Activity	Elementary-Middle	Secondary Activity
Discuss with class the meaning of cupful. Show class a cup. Name some things that can be put in cup. Let children demonstrate by filling the cup with water.	Demonstrate by filling various cups to full. Given 10 cups filled to various levels, ask children to show those which are "cupful".	Teacher sets up cups and student fills up cups with rice or water. Make card game like "Old Maid", where part filled cups are matched. Also filled cups are.

Skill Category: Volume

Flow Chart Code: Primary I-F # 20

Behavior: Names different types of cups. (Coffee cup, measuring cup.)

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class some cups. Teacher names and labels various types of cups; coffee, coke, measuring, styrofoam, etc. Let students then match name or picture to actual cup.	Have students to make cup-size containers from clay. Look at products and discuss how each cup is different then collect pictures of other types of cups.	Field trip to Dairy Queen. Order: cup of ice cream, large coke, small coke, milk shake, coffee. After finishing discuss types of cups here and other types.

Skill Category: Volume

Flow Chart Code: Primary I-P # 21

Behavior: Names common things that are measured by the cup.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in milk, juice, ice cream, coke. Show students that these are measured by cups. Give students a cup of liquid. Ask student to name other things measured by cups.	Teacher shows a set of prepared picture cards of items measured by cup. Discuss each. Let students make set of similar picture cards (index cards) by finding pictures from magazines.	1. Bring in a cup of flour, milk, coffee, rice, etc. Tell students these are usually measured by cup. Ask students to name other common items measured by cup. 2. Divide class into teams. Let them compete to see which team can list the most things that are measured by the cup.

Skill Category: Volume

Flow Chart Code: Primary I-F # 22

Behavior: Identifies containers which most likely can hold a cup.

Primary Activity	Elementary-Middle	Secondary Activity
Have available some containers of vastly different sizes and shapes. Take cup of water and pour into each. Ask students which would hold about a cup. Then let students use a cup and pour water to see if the container can hold a cup.	Same as primary, but use containers with less obvious differences in size.	Bring in a variety of cans and ask students to select one closest in size to a cup by comparing amounts in containers to actual cup size.

Skill Category: Volume

Flow Chart Code: Primary I-F # 23

Behavior: Demonstrates "full cup" on a marked cup.

Primary Activity	Elementary-Middle	Secondary Activity
Show mark line on measuring cup. Have class pouring punch, water, or milk into marked cups.	Let students use marked cup. Let them point to line signifying full cup. Then let students make marked line on paper cup after pouring water from previous cup.	Draw a ditto of cups with markings. Have sample cups drawn as full. Discuss mark that is full level. Let students complete sheet by shading drawn cups to full level.

Skill Category: Volume

Flow Chart Code: Primary I-F # 24

Behavior: Uses concept of pint as a unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in pint containers of milk and pint jar. Discuss each as a "pint". Pour milk into pint jar to show they hold the same. Tell students we use pint to measure.	Bring in a pint container of ice cream. Discuss its relative size (not very large) and serve ice cream to class, pointing out that each gets very little. Relate pint to other containers.	Bring in various empty containers holding a pint. Discuss pint as a convenient and consistent unit of measure.

Skill Category: Volume

Flow Chart Code: Primary I-F # 25

Behavior: Names common things that are measured by the pint.

Primary Activity	Elementary-Middle	Secondary Activity
Show children pictures of things measured by the pint. (Jelly, chocolate, milk, syrup, Ivory liquid) Have students to select pictures from magazines and collect to make a scrapbook.	Begin a play store in the classroom by bringing in items measured by pint from home. Discuss pint and ask students to bring other items from home for store.	Bring in grocery ads. Discuss which are offered in pint sizes. Let students make list of named items. Visit a store to show named items are in pint containers.

Skill Category: Volume

Flow Chart Code: Primary I-F # 26

Behavior: Identifies containers which most likely can hold a pint.

Primary Activity	Elementary-Middle	Secondary Activity
Have several pint containers, all colors and shapes, mixed with other vastly different containers. Ask children to pick out all the pint cans or jars from among the others by pouring a pint of liquid from a measured pint.	Use same activity, but use containers that are less obviously different.	Let students find containers around room or school. Put one pint of measured amount of liquid to see which would hold it.

Skill Category: Volume

Flow Chart Code: Primary I-F # 27

Behavior: Uses concept of quart as a unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Have quart containers of all colors and shapes. Have a quart of milk and demonstrate that the milk can be poured into each without overflowing. Let students bring in similar containers from home and label each as a quart.	Discuss quart as a larger unit of measure. Have two large containers to be filled with water by teams. One team uses a cup, one a quart container. When finished filling, discuss why the quart was better for filling. Discuss the fact that quart is used as a larger unit of measure.	Bring in various empty containers that hold a quart. Discuss quart as a convenient and consistent unit of measure. Compare quart to other units of measure pointing out its relative size, such as smaller than a gallon, larger than a cup.

Skill Category: Volume

Flow Chart Code: Primary I-F # 28

Behavior: Name common things measured by the quart (oil, milk).

Primary Activity	Elementary-Middle	Secondary Activity
Show students pictures of things measured by the quart (milk, oil). Ask the children to name the pictures. Then ask the students to name some things that are used in their homes that is measured by the quarts. Make a chart of the things, use words and have children find pictures for each word by matching word or new picture to picture word chart.	Bring in items that are measured by the quart (oil, milk, coke, fruit, etc.). Blindfold one student. Have him try to guess the item on the desk as he feels it. Also have the other students describe the item. After all items are named show the students that each item is a quart size but putting each within one container of similar size. Then have the students name the quart size items.	1. Have a party for the students. Describe certain things that can be measured by the quart then tell the students that they have to plan the party and that the only items they can have at the party will be those things that they can name that can be measured by the quart (to eat or drink). 2. Others: Activities with groceries bought by quart. Activities with cleaning and other materials related to work.

Skill Category: Volume

Flow Chart Code: Primary I-F # 29

Behavior: Identifies containers which most likely can hold a quart.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class various sizes of containers. Bring a 1 quart container of milk (filled with water). Tell the students that the milk is measured by the quart. Then have the students use the quart container to pour into some of the other containers to demonstrate which container will hold a quart. Have several milk containers and other quart containers and several grossly different sized containers for the exercise.	Make a chart with the word quart = = = quart container plastic bag water Describe the amount needed to make a quart. On one side of the yard have various sizes of containers, on the other side have several sizes filled with water. Provide a quart container to measure. The students have to pick the qt. containers by measuring the liquid. Then match these containers with similar containers (cont'd)	Have the class describe or talk about things usually measured by the quart (oil, milk). Make a list of things found in the grocery store, gas station and other places measured by the qua quart. Have class make a quart of punch or chocolate.

Skill Category: Volume

Flow Chart Code: Primary I-F # 29 (cont'd)

Behavior: Identifies containers which most likely can hold a quart.

Primary Activity	Elementary-Middle	Secondary Activity
	on the opposite side of the yard. But only match those that measure a quart. Can match by drawing a line with flour.	

Skill Category: Volume

Flow Chart Code: Primary I-F # 30

Behavior: Uses concept of gallon as unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Provide a gallon container (several) for illustration. Tell children that this is another way that liquids are measured. Let children pour water into a gallon. After the containers are filled, name the container "gallon".	Talk about using gallon as a way to measure, usually for liquids. Lead them to decide why some things are better measured as gallons than others; that large amounts of some things are needed, wanted, and used so a large unit of measure is more practical. (Milk, paint, gasoline, etc., but not usually medicine, pepper, hot sauce, etc.)	1. Students discuss using gallon as a unit of measure. "Why do we need a gallon?" 2. Arrange for students to use gallons in practical applications by actually pumping gasoline, painting with a gallon of paint, etc.

Skill Category: Volume

Flow Chart Code: Primary I-F # 31

Behavior: Name common things measured by the gallon (milk, gas, punch, clorox).

Primary Activity	Elementary-Middle	Secondary Activity
Make a list of gallon measured items by using words and pictures. Ask: "Can you name some things that you buy in gallon containers?" Let the children find the gallon containers at home and bring them to put in their school store.	Make a graph of the things used by the gallon in the school cafeteria and determine the number of gallons used (corn, peas, plums) to serve the total number of people.	Ditto: Name by writing. Determine the number of individuals or servings a gallon will serve.

Skill Category: Volume

Flow Chart Code: Primary I-F # 32

Behavior: Identifies containers which most likely can hold a gallon.

Primary Activity	Elementary-Middle	Secondary Activity
Make a chart of gallon containers and describe. Show the class pint, quart, and gallon containers. Ask them to pick the one which would hold a gallon.	Let the child choose from a group of varying sizes the one that holds a gallon.	Same as Elementary-Middle.

Skill Category: Volume

Flow Chart Code: Primary I-F # 33

Behavior: Distinguishes between measuring spoons and common spoons.

Primary Activity	Elementary-Middle	Secondary Activity
Show the class a measuring spoon and a spoon that we use with our meals. Describe that a measuring spoon is used to show certain amounts. Show them several other house spoons and the difference in sizes. Then ask the students to choose the measuring spoon from a group of spoons.	1. Show the students a measuring spoon and common spoon and label each. Repeat several times. 2. Game: Make a spinning wheel of various sizes and types of spoons. Attach money value to each. If child can name type of spoon, he wins that much money. (Use paper money, or let kids add on paper to get winner.)	Label some spoons as measuring and common spoons. Describe the labels to the students. Then in the measuring spoons pour water and into the common spoons pour salt water. Have the students taste the liquids and describe the taste and name the spoon that the taste came from.

Skill Category: Volume

Flow Chart Code: Primary I-F # 34

Behavior: Discriminates between a tablespoon and a teaspoon.

Primary Activity	Elementary-Middle	Secondary Activity
1. Make a chart by using a tablespoon and a teaspoon. With pipecleaner attach the spoons to a piece of cardboard and label. Describe these to the students and name. Then have other same size spoons so that the student can match by placing one on top of the other and name. 2. "Show and Tell" - Let each one show his or her spoon telling what each one is used for and if it is a tablespoon or a teaspoon. 3. Have students match real tablespoons and teaspoons to labeled pictures of tablespoons and teaspoons	1. Place a tablespoon on a table. Tell the students its name. Place a teaspoon in a glass of tea. Tell the students its name. Tell them that both spoons are used to measure. 2. Game: Mix up spoons, give each child 5 spoons. Let child place spoon on a table or in a glass of tea saying "table or tea" to show his knowledge. Each right answer gets 1 M&M.	Bring in a silver storage tray. In one tray compartment place a teaspoon and label. Do same for tablespoon. Describe spoons to the students and have them name. Explain that each spoon is used for measuring. Have a pile of spoons to be sorted. Time each student on sorting these into the tray. Then ask them to name the spoons. Students may also simply sort spoons by naming each one aloud.

Skill Category: Volume

Flow Chart Code: Primary I-F # 35

Behavior: Uses concept of spoonful.

Primary Activity	Elementary-Middle	Secondary Activity
1. After class discussion about a spoonful, ask class if they ever had to take a spoonful of medicine? Have children to describe their action. (Caution on taking medicines not known.) 2. Bring a treat for the students that they can only have a spoonful of at a time. Give each student his own spoon and let him get his own spoonful.	Bring in a spoon and fill it several times and describe each as a spoonful. Also have a measuring cup with a red line. Fill the cup almost to the line except for one spoonful. Then play T.V. commercial by having the students describe that they cooked a whole plate of chicken and all the oil came back except one spoonful. Go through the process of measuring a spoonful and filling up the cup.	1. Describe a spoonful to the students. Then have the students check the number of drops it takes from an eye dropper to make a spoonful. The spoon is full if it does not overflow. 2. Have students draw a circle around pictures of spoons which are full on a sheet with pictures of spoons filled to various levels.

Skill Category: Volume

Flow Chart Code: Primary I-F # 36

Behavior: Uses concept that measures are used to sell equal amounts to all customers.

Primary Activity	Elementary-Middle	Secondary Activity
Plan a trip to store. Show the children that the items we buy are measured in equal amounts.	Give two students one piece of cake. Have one student divide the piece and the other student to choose the piece he wants. The division has to be equal so that each student has the same amount. Explain that stores give equal amounts by measuring.	Discuss amounts as quantity and how people purchase by the amount. To demonstrate, have the students prepare and sell popcorn at recess. Let them decide how they are going to measure it for selling purposes.

Skill Category: Volume

Flow Chart Code: Primary I-F # 37

Behavior: Uses concept of "recipe" as a way to cook based on measuring.

Primary Activity	Elementary-Middle	Secondary Activity
Show and discuss a recipe and that cooking is based on measuring. Plan to bake some cookies or a cake to demonstrate the use of measuring.	Bring a hot plate to class and cook some pancakes for the kids. Demonstrate measuring as you cook, then show students the recipe card and have them make a recipe card.	Give each student a small cup containing some portion of a recipe for a cake. Have the proper measuring tools available. Ask the students to put their cups of ingredients in the proper measuring tools. Use this to bake a cake and explain that it was made from a recipe and measured.

Skill Category: Volume

Flow Chart Code: Primary I-F # 38

Behavior: Uses concept that recipe ingredients must be measured.

Primary Activity	Elementary-Middle	Secondary Activity
Plan baking cookies. Have several measuring containers for the demonstration. Bake the cookies using the containers and demonstrate that the cookies need to be made from measured ingredients.	Have the class prepare a small luncheon using several recipes (meat loaf, vegetables, etc.).	Same as Elementary-Middle.

Skill Category: Volume

Flow Chart Code: Primary I-F # 39

Behavior: Uses concept that people use different measures for volume in different countries.

Primary Activity	Elementary-Middle	Secondary Activity
Tell class that different measures are used by peoples. Show a film or filmstrip. Have a question and answering period.	Bring in some containers of metric measurement and show the comparison between the U.S. system and the metric system. Mention some of the other countries that use the metric system.	1. Have guests from other countries visit the class and ask them to show or explain some measurements from their countries. 2. Discuss the need for uniform measurements in a country so everyone knows how much is meant by a measure no matter what system is used or what name a measure is given. 3. Help students make up their own simple system of measurements and their own name for each.

(In eventual adoption of metric in USA, specific units would be introduced by levels.)

Skill Category: Volume

Flow Chart Code: Primary I-F # 40

Behavior: Uses concept that apples and fruits, and vegetables can be measured in a basket.

Primary Activity	Elementary-Middle	Secondary Activity
Have a discussion on how fruits and vegetables are sent to the market. Show the children a basket. Plan a trip to the farmers market.	Take the students to the grocery store on a field trip. Have the produce man show them the back room and the baskets that the fruit and vegetables come in to the store.	1. Show a film about a peac or produce packaging farm to the students and the packing process for shipping. Draw attention to the baskets used in pick- ing, packing, etc. 2. Take students to an orchard and let them pick and purchase the fruit by basket.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 1

Behavior: Uses concept of "level" measure.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in a bubble level. Show the students how, when the level is flat, the bubble is between the lines. Describe that you are measuring level.	Have the children to bring sand, beads and sugar, etc. Discuss the meaning level. Show the class by filling a cup or spoon to the top or by taking a knife leveling it off.	Have many measuring containers, some with level measures and some less than or more than level. Show the students how to make a level measure. Then ask the students to choose those containers that are level measures.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 2

Behavior: Uses concept of "heaping" measure.

Primary Activity	Elementary-Middle	Secondary Activity
Have a big box of cereal in the class. Ask each student to hold out his hand. Pour the cereal into the hand until it flows out. Say that he has a "heaping" handful when it flows over.	For discussion "heaping", have children bring to class items of dry things. Do a demonstration. Have children demonstrate.	Take the students on a field trip to Magic Market. Have the clerk make a frozen coke for each student. Before anyone drinks the coke, point out that it is a heaping measure.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 3

Behavior: Uses concept that different shapes of containers can hold same volume.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in a long thin test tube filled with water. Bring in a short fat test tube that will hold the same amount. Ask the student which will hold the most. Let them pour them back and forth to prove the volume.	Find containers of different shapes that hold same amount. Ask children to pour beans into each and prove they are the same.	Bring to class different shapes of store containers that measure a quart. Empty all the containers. Take the contents of one container and show the students that this amount fills each of the other containers. Do this for all contents.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 4

Behavior: Uses concept that all matter is either solid, liquid, or gas.

Primary Activity	Elementary-Middle	Secondary Activity
Talk about solids, liquids and gases. Demonstrate the process of change by showing the students a cube of ice (solid), turn it to liquid by melting, then to gas by boiling to steam.	Have a discussion. Have children name some solid things and liquids. Provide to have some on hand. Show a film to class.	Show the students a film on liquids, solids and gases. Bring in some examples; fill up gas balloons that will float.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 5

Behavior: Recognizes that containers may hold solids, liquids, or gases.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in containers that hold gases, liquids and solids. Show them to the students and talk about the containers. Then ask the students to name some other containers that might hold the solids, liquids and gases.	Class discussion. Show a film. Have children reporting to class their findings. Have solids, liquids and air available to use. Ask kids what each container can hold.	Bring in some solids and liquids and gases. Ask the students to take the substances out of their containers and put them in something else.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 6

Behavior: Uses concept that a container holds same amount of solids, liquid, or gas.

Primary Activity	Elementary-Middle	Secondary Activity
	Using sand and water and 3 containers, measure like volumes of sand and water.	Using 2 standard measuring cups, measure a cup of milk in first container and in the second container measure a cup of milk and exchange containers.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 7

Behavior: Uses different measures for dry and liquid volumes.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class measuring tools for dry and liquid measure. Show the students the difference in the measurement by pouring and measuring.	Let children do a unit on dry and liquid measure. Let the children write a skit pertaining to dry measure and liquid. Make a mural.	Have the students prepare to bake a cake that requires dry and liquid measurement cups. Have the students bake the cake and show them the difference between liquid and dry measurement.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 8

Behavior: Uses concept of C. or c. as cup.

Primary Activity	Elementary-Middle	Secondary Activity
On a posterboard put a picture of two cups. Beside the pictures write C or c, then ask the students to name the pictures. Tell the students that the letter C or c sometimes means cup when written in recipes.	Show and tell period. Bring recipes to class. Read them to the students and show them how C or c stands for cup. Ask children what C or c stands for.	Make a poster of a recipe with C or c written for cup. Describe. Ask the students to read over recipe cards to find the ones that have a C or c on the cards. Ask them to tell what the C or c stands for.

Skill Category: Volume

Flow Chart Code: Elementary I-F 9

Behavior: Recognizes "½" as symbol for "half".

Primary Activity	Elementary-Middle	Secondary Activity
Bring in apples to serve the class. Explain that each child will receive ½ of an apple (show the symbol ½). Cut the apples in half, and say "½" and point to the symbol ½ as you cut. Serve them to the students, repeating ½.	Explain to class the meaning of ½. Have class measure water, milk in containers marked ½.	Divide the class into teams. Have 2 cups with the ½ line marked in red. The object is to fill up an empty bucket for each team with a relay race using water in the measuring cup up to the ½ mark. Explain that ½ means half. After the race talk about why the race took twice as long to run.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 10

Behavior: Uses concept of "half-cup".

Primary Activity	Elementary-Middle	Secondary Activity
Bring into class a pitcher of kool-aid. Serve some to the students from a cup marked half with a piece of tape. Say that you are giving each student $\frac{1}{2}$ cup as you serve. If a student wants more drink, ask him to pour $\frac{1}{2}$ cup into measuring cup then into his drinking cup.	Demonstrate to the class the concept of $\frac{1}{2}$ cup. Given 10 cups filled to various heights, the students can choose which are "half-cups", or can fill a cup half way with water or rice.	Demonstrate to the class the concepts of $\frac{1}{2}$ cup. Litto sheet: On a sheet, draw cups and show levels. Circle those which are "half=full."

Skill Category: Volume

Flow Chart Code: Elementary I-F # 11

Behavior: Shows half-cup on a marked measuring cup.

Primary Activity	Elementary-Middle	Secondary Activity
Cut a place about 2 inches on a plastic measuring cup at the ½ line. Outline the (—) cut in a marking pen that will not wash away. Ask a student to fill up the cup. The water will flow out of the cut place and the student can give you only ½ cup. Explain the mark as being ½ cup.	Demonstrate place where half-cup measure is. Ask child to fill cups to half mark on measuring cup.	Make up a recipe using half cup. Make the item. Let children measure.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 12

Behavior: Uses concept that fluid ounces (ou. or oz.) can measure liquid volume.

Primary Activity	Elementary-Middle	Secondary Activity
Have a student hold a bucket. Put a plastic bucket in his hand. Give each of the students an oz. cup to fill the bucket. Ask the student to tell you when the bucket gets heavy. Then explain to the other students that each cup weighs an oz. and that the total weight of the bucket can be measured by the amount of cups they put into the bucket. Count cups then show them weight on a marked oz. scale that you have previously marked.	Have children make balance scales. Discuss ounce, oz, and pounds. Have children weighing things that are liquid by ounces.	Have the students prepare a snack for the younger class by making kool-aid popcicles. Use 1 oz. cups, sticks, kool-aid, sugar. Mix and freeze, weigh the total container, then the kool-aid in the container. Subtract weight of container. Then pour into oz. containers to show that the liquid can fill x amount of oz. containers.

Skill Category: Volume **Flow Chart Code:** Elementary I-F # 13

Behavior: Uses concept that a cup equals 8 ounces of volume.

Primary Activity	Elementary-Middle	Secondary Activity
Demonstrate to the students that a cup equals 8 ounces by showing a cup marked 8 ounces filled with water. Repeat the demonstration many times. Then have each student fill a cup up to a line marked 8 and tell him he has an 8 ounce cup.	Find an 8 ounce container (half-pint). Find a marked cup. Through discovery, let students realize that both are equal.	Have the students make a measuring cup to take home for their use. Use large see-through heavy plastic cups. Make handles from glueing 3 sets of 3 each braided straws to the cups. Put a hash mark at each ounce with a marker that will not wash off. Show the students that 8 ounces is the size they need by filling a measuring cup and pouring it into an unmarked cup and then mark it 8 ounces and 1 C.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 14

Behavior: Knows that pt. = pint.

Primary Activity	Elementary-Middle	Secondary Activity
Show the students the meaning of abbreviations by showing them initials in name. Then explain that other named things have shorter ways to write them., i.e. pt.-pint. Have the students begin a card catalog of abbreviations for recipes in the future.	Discuss with the children a shorter way of writing the word pint. We use abbreviations in recipes. Bring to class a cookbook and show them a recipe using pt.	Use a recipe with pt. Make a cookbook of recipes with pt. as abbreviation.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 15

Behavior: Measures pint on a marked cup.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class a measuring cup marked pint-16 oz. Obtain from lunchroom 2 ½ pints of milk. Explain that the milks are ½ pint. Ask one student to pour ½ pint into measuring cup. Then ask the students to guess if the other ½ pint will make it overflow. Pour in the milk. Ask a student to come up and point to the measuring mark. Call it a pint.	Show children a measuring cup with pint marked on it. Ask if a pint bottle or carton holds as much as the measuring cup with pint marked on it. Demonstrate, or have demonstrated by pouring water from the measuring cup into the milk carton or pint jar or pint bottle.	Make up a recipe that calls for pint measurement. Have the students make the recipe and bake. Show the students the pint measurement on the marked cup and then let them measure out the ingredients of the recipe.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 16

Behavior: Uses concept of half-pint as a unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Demonstrate the concept of ½ pint by using a ½ pint milk carton from the lunch room. Pour it into a measuring cup. Label it ½ pint. Repeat process in paper cups and have students mark ½ pint line before drinking milk.	Have the children bring containers of various shapes and sizes to class. These containers might be measuring cups, paper cups, milk cartons, and plastic containers. Discuss how different kinds of goods are bought. For example, some things are bought by the half pint. Ask the children to name some things that are bought by the pint.	Using a recipe that calls for a pint measurement, ask the students to make ½ the recipe. Explain that ½ pint is a unit of measure and show the measurement on a measuring cup. Cook the item.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 17

Behavior: Uses concept that milk, juice, etc. is measured in a half-pint.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class a can of pint juice and a carton of pint milk. Serve this to the students in oz. cups. Count the number of servings and then compare the count to a chart, i.e. 8 oz. = cup, etc. so that they can find out that the juice was 1 pint and the milk 1 pint.	Have children observe and describe a half pint container or cup. You may serve them orange juice, or punch. Demonstrate or have children demonstrate.	Take the students on a field trip to the grocery store. Have 1 group find cans of juice measured in pints. Have the second group find milk measured in pints. Have each group count the number of cans or containers of milk. Show students a pint of milk and a pint of juice before going to the store and discuss.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 18

Behavior: Uses concept that cup = half-pint.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class a measuring cup of half-pint. Show it to the class and explain pint. Obtain from lunchroom a ½ pint of milk. Tell the students that it is ½ pint. Pour ½ pint into cup, show that they are equal. Pour it back into the carton and repeat.	Have several half pint containers and measuring cups available for demonstration. Have student pour water, milk or punch into cup and then into the half pint container. Show class packaged items that measure half pint. Use only liquid measures such as syrup, cottage cheese, salad dressing, etc.	Let class make a half-pint of (syrup, salad dressing, punch or chocolate.)

Skill Category: Volume

Flow Chart Code: Elementary I-F # 19

Behavior: Shows a half-pint (cup) on a marked cup.

Primary Activity	Elementary-Middle	Secondary Activity
Put a red piece of masking tape on a measuring cup. Have each student do the same to their cups. Tell the students that the red line is half-pint (cup). Ask each student to point to cup line.	Bring to class for demonstration a measuring cup and show student a half pint or a marked measuring cup. Have each one to fill the cup with water, sand, or milk so they would be able to see for themselves.	Make a chart of cups with names for cups--½ pint, pint, etc. Show the students the ½ pint cup. Give them a ditto sheet with water lines marked on cups. Ask them to circle half-pints, then check answers against chart.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 20

Behavior: Uses qt. as abbreviation for quart.

Primary Activity	Elementary-Middle	Secondary Activity
On posterboard write the word quart. On a second piece, the abbreviation qt. On a third piece, draw a quart of milk. Have 3 students tie string in posterboard so that it will fit like a necklace. Then put posters on students and have them lock arms. Show this to class and say quart. Ask each class member to come up and say the same thing.	Teacher shows students word quart and abbreviation qt. Will explain that qt. is short for quart. Students are shown several cards or given a worksheet containing abbreviations. Will choose cards that mean quart (qt). In matching activity, will match the word quart to abbreviation qt.	Students will be shown a variety of containers of different volumes. They will label the quart containers by placing card qt. on the container, after the student has been told that qt. stands for quart.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 21

Behavior: Uses concept of "half-quart".

Primary Activity	Elementary-Middle	Secondary Activity
Teacher will bring to class a quart container of milk. She will cut the container in half. The students will measure the heights of the two containers and see that they are equal. Teacher will explain that they now see two ½ quarts. Let each student repeat process on his own quart container.	Students will be shown 3 quart containers, 1 full of water, 1 empty, and 1 half full of water. Will be explained that the container half full is half a quart. Several qt. containers will be shown, each filled to a different level with a liquid. Students will choose the ones that are half-quarts.	Teacher will show the students several grocery items and explain that they are half-quart measurements. Teacher will bring in grocery items. Students will decide which items look like "half-quarts". Will measure to see.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 22

Behavior: Measures qt. on a marked or unmarked cup.

Primary Activity	Elementary-Middle	Secondary Activity
Teacher will show the students the amount of liquid required to make a quart. She will then show them several containers that are marked quart. The students will fill the containers with the liquid to check. She will then ask the students to mark with masking tape on a gallon milk carton the quart mark as measured by the liquid.	Teacher will have collection of quart jars. Have students measure by pouring water into jars. First use ones marked 1 qt. then have students estimate the amount in a quart by pouring into unmarked container. Check by pouring back in qt. jar.	Have students measure items. Gas, water, etc. Have them first measure in marked jar, then estimate a quart. Bring in things marked as quarts. Example: cleaning liquids, cokes, drinks, etc. Have students pour these liquids into unmarked container to see if it is the same.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 23

Behavior: Uses gal. as abbreviation for gallon.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in a gallon plastic milk carton. On one side of the carton write gallon, on the other, gal. Repeat until 2 sides say gal. and 2 sides say gallon. Have the students spin the plastic container and write down the word it shows when it stops. Check after 5 minutes to see which one showed the most, gal. or gallon. Then explain that they both stand for the same thing (gallon).	Students shown word gallon and gal. Explain that gal. is short for gallon. Matching sheet: draw lines matching things that are the same - gal., gallon.	Make a cookbook of recipes made with gallon. As they make the recipes tell them that a short way to write gallon is gal. With ads, make a collage of gal., as used in grocery ads.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 24

Behavior: Uses concept of half-gallon.

Primary Activity	Elementary-Middle	Secondary Activity
Mark with masking tape the ½ gallon line on a plastic milk carton. Cut the carton in half after you have measured water to the ½ gallon line. Pour the water back into the bottom half of the cut container. Put a full gallon container beside the cut one. Explain ½ gallon and gallon then show the students that it takes 2 ½ gallons to fill up the gallon container.	Bring in gallon and half-gallon containers. Have kids pour water to fill gallon container half full. Pour into half-gallon container. See that it is the same. Use several different shaped containers to illustrate this concept. Use lots of measuring practice.	Pour things to estimate half gallon in gallon containers. Use milk bottle. Use gas can.

Skill Category: Volume

Flow Chart Code: Elementary I-P # 25

Behavior: Uses concept that many liquids are measured in half-gallons (milk, orange juice).

Primary Activity	Elementary-Middle	Secondary Activity
Make a posterboard of empty containers ½ gal. size. Explain this size to the students, then ask them to look through magazines to find pictures of ½ gal. containers. The pictures will be taped on a string under the container board.	Bring into class many different things that are bought in half gallon containers. Have sheet where students circle things measured in half-gallons.	Show the students many containers of grocery products measured in ½ gal. Then ask the students to make a ½ gal. collage on a ½ gal. bottle. Glaze the collage with varnish to keep the finish. Make sure that the pictures for the collage are things that can be measured in ½ gal.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 26

Behavior: Uses Tbsp. as abbreviation for tablespoon.

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class a tablespoon. Inside the spoon tape the word tablespoon, on the back side tape Tbsp. Explain to the students that this means the same thing but Tbsp. is an abbreviation. Suspend the spoon by string and tape from the ceiling. Have 2 students blow on opposite sides of the spoon, making the Tbsp. the "old maid" side, if it stops facing that student.	Show that Tbsp. is a shorter way to write tablespoon. Matching activity where students will draw a line to words that mean the same thing.	Have a collection of many spoons of different sizes. Have students sort through the spoons and place under heading Tbsp. the ones that are tablespoons, after the teacher has explained that Tbsp. is a short way of writing tablespoon.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 27

Behavior: Uses tsp. as abbreviation for teaspoon.

Primary Activity	Elementary-Middle	Secondary Activity
Label teaspoons as tsp. and teaspoon. Tape a string on to the spoons. Put all the spoons in a bag. Have the students come up one at a time to pull on a string. If a spoon comes out of the bag, call it teaspoon and show the labels. Have only 1 surprise string. Repeat many times.	Students are shown words teaspoon and tsp. on cards. Told they mean the same thing. They then are asked to match the tsp. to the picture or word teaspoon.	Make a recipe cookbook, by combining recipes with tsp. in them. Have a spoon labeled tsp. and teaspoon so that the students can learn the symbol while they cook. Teacher needs to point out that tsp. and teaspoon stand for the same thing.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 28

Behavior: Uses T. as abbreviation for tablespoon and t. for teaspoon.

Primary Activity	Elementary-Middle	Secondary Activity
Label 8 spoons as tablespoon and teaspoon with the T or t written on the label along with the word. Place the spoons in a circle. Play spin the bottle to count the number of T's or t's found.	Students are told that sometimes teaspoon and tablespoon are written even shorter than tsp. and Tbsp. Told T = Tablespoon, t = teaspoon. Shown a Tablespoon and teaspoon at varying intervals, told each time to write it in a different way.	Show students a Tablespoon and a teaspoon. Label them as such, then under the label put T and t for each. Make a cookbook of recipes with T and t in them. Prepare on ditto sheets and run off to make books.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 29

Behavior: Discriminates size and use of teaspoon.

Primary Activity	Elementary-Middle	Secondary Activity
Make a posterboard chart from real spoons-teaspoons. Have the students sort spoons from a pile onto the chart by placing 1 spoon on top of the other. The students are then asked to select a spoon to match an amount of liquid so that the spoon will have a spoonful. The liquid should be teaspoon.	Many different sizes and types of spoons are brought to class. Student will choose the teaspoons from the others by matching them to a spoon chart. Students will be given list of things that are measured. Will circle the ones that can be measured by the t.	Use a recipe that calls for teaspoon of measurement. Have only a large serving spoon and a teaspoon to cook with. Ask the students to decide which is needed to make the recipe.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 30

Behavior: Discriminates size and use of tablespoon.

Primary Activity	Elementary-Middle	Secondary Activity
Make a silver tray mold to fit a tablespoon from plaster of paris. Ask the students to sort through a pile of spoons to find the ones that will fit the mold. Explain that it is a tablespoon mold. After each student has a tablespoon in hand, ask him to fill it with water then measure this into a labeled tablespoon to check to see if they are the same.	Various types and sizes of spoons are brought to class. Students will choose ones that are tablespoons by matching them to a chart. Students will measure various items (sand, sugar, etc.) by T chosen. Will check by placing measured materials in marked T; see if the same.	Bake a cake using a recipe that calls for a tablespoon. Have the students find a tablespoon to measure with by comparing the volume in an actual measuring spoon marked tablespoon to that of a flatware spoon that is unmarked. You want the students to measure with the flatware spoon that they found to be a tablespoon.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 31

Behavior: Uses concept of heaping spoonfuls.

Primary Activity	Elementary-Middle	Secondary Activity
Demonstrate to the class the concept of heaping spoonful by measuring different types of items. Rocks, sand, water, M&M's, dirt. Ask the students to pick out the highest spoonful that is measured and call it a heaping spoonful.	Students will be explained concept of heaping spoonfuls. Teacher will demonstrate by measuring several things in heaping spoonfuls. Students should participate in measuring.	Measure some sand by the spoonful. Tell the students that they have a heaping spoonful when the sand no longer stays within the spoon. Repeat with flour to see who can get the most flour on a spoon.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 32

Behavior: Uses concept of level spoonfuls.

Primary Activity	Elementary-Middle	Secondary Activity
Have students measure sand in spoonfuls. Then have the students level off the spoonfuls of sand with a knife as they measure. Tell the students that they are making a level spoonful.	Students will be told that usually things are measured in level spoonfuls. Students will measure sand, sugar, etc. in level spoonfuls.	Give each student in the class a spoon. Have the students measure flour with the spoon. Take a knife and level off each students spoonful. Call it a level spoonful and ask them to repeat it.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 33

Behavior: Uses concept that things in stores include cost for containers.

Primary Activity	Elementary-Middle	Secondary Activity
	Different foods and other materials should be brought into classroom packaged in different containers--glass, paper, dishes, bags, etc. Students will be told to notice the difference in the prices of the items in the different containers. Will generalize that the same material in different type containers will cost different prices depending on the container.	

Skill Category: Volume

Flow Chart Code: Elementary I-F # 34

Behavior: Uses concept that measures in recipes are abbreviated in different ways.

Primary Activity	Elementary-Middle	Secondary Activity
Show student list of various abbreviations used in recipes and discuss what they stand for. Point out different abbreviations for same word.	Explain to students the above concept. Give recipes to students where measures are abbreviated differently in the recipes. Students told to compare different abbreviations.	Have students make up a recipe using different ways to abbreviate measures in it.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 35

Behavior: Uses concept that recipes can be made larger or smaller.

Primary Activity	Elementary-Middle	Secondary Activity
	Teacher will bring in a recipe. It will be decided that don't need that much. Teacher will explain that can be made smaller. Also reverse explained. Have students divide or enlarge a recipe (use whole nos.)	

Skill Category: Volume

Flow Chart Code: Elementary I-F # 36

Behavior: Recognizes that there is another system of volume measurement called "metric".

Primary Activity	Elementary-Middle	Secondary Activity
Child is shown some metric volume measuring instruments and told they are used in the system called "metric" without going into metric units or terms.	Child is allowed to measure some things using "metric" volume containers and told they are part of another system called "metric".	Child measures things using both "metric" volume containers and standard volume containers and then discusses and makes comparisons.

Skill Category: Volume

Flow Chart Code: Elementary I-F # 37

Behavior: Uses concept of bushel as unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
	Show examples of different units of measure. Have bushel as one. Have students compare the size of a bushel to other dry measures.	

Skill Category: Volume

Flow Chart Code: Elementary I-F # 38

Behavior: Uses concept that some things are measured by the bushel.

Primary Activity	Elementary-Middle	Secondary Activity

Skill Category: Volume

Flow Chart Code: Elementary I-F # 39

Behavior: Names common things measured by the bushel.

Primary Activity	Elementary-Middle	Secondary Activity
	Students go on trip to market or shown pictures of goods measured by the bushel. Students given list of many items; place together those things measured by the bushel.	

Skill Category: Volume

Flow Chart Code: Elementary I-F # 40

Behavior: Names containers that hold about a bushel.

Primary Activity	Elementary-Middle	Secondary Activity
	Variety of containers brought in that measure a bushel--basket, bucket, sack, etc. Have students place things in different containers to see if they do measure about a bushel.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 1

Behavior: Uses application of cup = half-pint.

Primary Activity	Elementary-Middle	Secondary Activity
Ask each child to bring one-cup measure to school. At lunch time, allow children to pour milk from carton into cup and drink out of cup.	Students reviewed on concept that 2 cups = 1 pint. Told 1 cup = half-pint. Will measure and record how half pints measure using different style cups (unmarked).	Use simple recipe calling for whole cups, but substitute half-pint in the written directions. Have students to measure cup into half-pint, then proceed with recipe. Russian Tea Punch Mix: ½ pt. iced tea ½ pt. lemonade ½ pt. orange juice ½ pt. pineapple juice (makes 1 qt.)

Skill Category: Volume

Flow Chart Code: Middle I-F # 2

Behavior: Recognizes 1/4 as symbol for one-fourth and one-quarter.

Primary Activity	Elementary-Middle	Secondary Activity
Give student puzzles that fit together in halves showing 1/4 of some item. Below the picture on one half have the symbol "1/4" and on the other half have the words "one-quarter". 	Explain to students that 1/4 is called a quarter. Show how 1/4 cup is measured in a cup. Students will be given cards to match equal amounts--1/4 = quarter, as showing. Pictures of 1/4 amounts of things with "1/4" on them to match with cards that say "quarter" or to put under a heading that says "quarter".	Give students pictures of various fractions of a whole such as 1/2, 1/3, 1/4, etc. Then have them pick out the one which means a "quarter".

Skill Category: Volume

Flow Chart Code: Middle I-F # 3

Behavior: Uses concept of 1/4 cup.

Primary Activity	Elementary-Middle	Secondary Activity
Using the 1/4 cup have child to pour water into varying sizes of containers to determine which one holds 1/4 of a cup.	Students will be asked to measure different materials in 1/4 cup amounts--water, sand, etc.	Make list of things used in the classroom that can be measured in terms of 1/4 cup (glue, water for paint).

Skill Category: Volume **Flow Chart Code:** Middle I-F # 4

Behavior: Shows "quarter cup" on a marked measuring cup.

Primary Activity	Elementary-Middle	Secondary Activity
Students will be given marked measuring cups. Will measure materials in quarter cup amounts.	→	→

Skill Category: Volume

Flow Chart Code: Middle I-F # 5

Behavior: Recognizes 3/4 as "three-fourths" and as "three-quarters".

Primary Activity (Inappropriate)	Elementary-Middle	Secondary Activity
Show the students cards with symbols for various fractions on them including "3/4" and tell students orally to pick out the one that means "three-quarters" and "three-fourths". Point out that the same symbol of 3/4 is for both terms.	Students will be shown several containers of uniform size. The containers will be filled to varying levels and labeled with the amounts they contain such as "1/2", "1/4", "3/4" "three-fourths" and "three-quarters". Have students compare them and point out that the ones labeled "3/4" "three-fourths", and "three quarters" have the same amounts.	Students will be given a variety of containers of different sizes with lines on them showing different fractional levels such as 1/2, 1/4, 3/4, but not labeled. Have students pick out the lines showing "3/4", "three-fourths", and "three-quarters". Point out that these are the same lines for each.

Skill Category: Volume

Flow Chart Code: Middle I-F # 6

Behavior: Uses concept of 3/4 cup.

Primary Activity	Elementary-Middle	Secondary Activity
←	Students will be shown a cup filled 3/4 full. Will be told to see how many 1/4 cups are in 3/4 cup. Will see that there are three in 3/4 cup.	→

Skill Category: Volume

Flow Chart Code: Middle I-F # 7

Behavior: Shows 3/4 cup on a marked cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will be given measuring cups and liquid for measuring. Will show 3/4 cup. Will be given an activity to choose the cups on a sheet that are 3/4 full.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 8

Behavior: Recognizes 1/3 as symbol for one-third.

Primary Activity	Elementary-Middle	Secondary Activity
	Will be explained that 1/3 is the same as one-third. Will be shown containers marked at 1/3 level. Will match 1/3 to the containers marked at 1/3 level on worksheet.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 9

Behavior: Uses concept of 1/3 cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will be given a chance to measure various materials in a cup to 1/3 cup level. Given cup--water, colored liquid, sand, etc.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 10

Behavior: Shows third of a cup or 1/3 cup on a marked measuring cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students, after measuring various materials, will show they understand the concept 1/3 cup. Will measure 1/3 cup of different materials. Will be shown several cups. Will place 1/3 on the cups showing 1/3 of liquid.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 11

Behavior: Recognizes 2/3 as symbol for two-third cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will be shown a cup measuring 2/3 cup. Will be told that the cup is 2/3 full-- 2/3 = two-thirds. Will be given a worksheet. Will match the cups marked 2/3 with symbol of 2/3.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 12

Behavior: Uses concept of 2/3 cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will, by measuring, generalize that 2/3 cup is equal to 2 1/3 cups. Will use measuring to conclude this concept. Students will measure various materials to 2/3 cup level. Will check themselves to see if 2/3 is equal to 2 1/3 cups.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 13

Behavior: Shows 2/3 cup or two-thirds cup on a marked measuring cup.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will be given marked measuring cup. Will measure materials by looking at cup and measuring to 2/3 cup level. When given cups on worksheet, will check ones that measure 2/3 cup.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 14

Behavior: Uses 1 pint as 2 cups.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will be instructed that 1 pint is equal to 2 cups. Will use measuring items to reach this conclusion. Will be asked "How many cups are in a pint?" Will measure to find answer.	

Skill Category: Volume **Flow Chart Code:** Middle I-F # 15

Behavior: Uses pt. as abbreviation for pint in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
	Explain that pt. is the abbreviation for pint. Review concept that 2 cups = 1 pint. Explain that pt. is used in recipes. Have students write a recipe using pt. as an abbreviation.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 16

Behavior: Measures "half-pint".

Primary Activity	Elementary-Middle	Secondary Activity
Provide half-pint measuring utensils and liquids. Assign students to measure liquids in half-pints.	→	→

Skill Category: Volume

Flow Chart Code: Middle I-F # 17

Behavior: Uses "half-pt." as abbreviation in recipes.

Primary Activity	Elementary-Middle	Secondary Activity
	Students will come to generalization that half-pt. is equal to half-pint. Will be given recipes. Will notice that half-pt. is used as abbreviation. Will make punch using the abbreviations learned.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 18

Behavior: Uses concept that 1 quart = 2 pints.

Primary Activity	Elementary-Middle	Secondary Activity
	Using a quart container, plus pint containers, allow students to discover how many pints = 1 quart. Ditto sheet: Various groupings of containers. Circle which are equal to 1 quart.	Student should be able to match on ditto sheet how many pints equal one quart.

Skill Category: Volume

Flow Chart Code: Middle I-F # 19

Behavior: Measures a half-quart.

Primary Activity	Elementary-Middle	Secondary Activity
	Using a quart container, students should pour water to quart level. Then divide in half by equalizing into 2 containers which are alike.	→

Skill Category: Volume

Flow Chart Code: Middle I-[illegible] # 20

Behavior: Uses qt. as an abbreviation for quart in recipes.

Primary Activity	Elementary-Middle	Secondary Activity
	Given a recipe, the student can re-write it using qt. as abbreviation.	Find recipes containing qt. for quart, and make into a book.
	On a ditto sheet, student matches qt. with quart.	On a ditto, can match qt. to quart.

Skill Category: Volume

Flow Chart Code: Middle I-F # 21

Behavior: Uses 1 gallon as 4 quarts.

Primary Activity	Elementary-Middle	Secondary Activity
Let child pour liquid from a gallon container into quart containers to determine the number of quart containers needed to make a gallon.	→	→

Skill Category: Volume

Flow Chart Code: Middle I-F # 22

Behavior: Uses 1/2 gallon as 2 quarts.

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Middle I-F, # 21.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 23

Behavior: Measures half-gallon in a container.

Primary Activity	Elementary-Middle	Secondary Activity
Bring large containers and allow students to mix liquids by half-gallon lots.	→	→

Skill Category: Volume **Flow Chart Code:** Middle I-F # 24

Behavior: Measures gallon in a container.

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Middle I-F, # 23, except use gallon lots.	

Skill Category: Volume **Flow Chart Code:** Middle I-F # 25

Behavior: Uses gal. as abbreviation in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
Have students read a recipe out loud in which the abbreviation "gal." is used, being sure they read it correctly as "gallon".	→ Make a recipe using the abbreviation gal., used for gallon. Kool-Aid 2 packages of Kool-aid 2 cups sugar 1 gal. water	Read instructions on cleaning products where gal. is used as an abbreviation. Ex.: Mix 1 cup clorox to 1 gal. water.

Skill Category: Volume

Flow Chart Code: Middle I-F # 26

Behavior: Uses 3 teaspoons as 1 tablespoon.

Primary Activity	Elementary-Middle	Secondary Activity
Using both dry and liquid ingredients have students fill teaspoons and use them to see how many will fill a tablespoon by actually doing it.	→ Change a recipe to show amounts in teaspoons as multiples of tablespoons. Then make recipe both ways.	→

Skill Category: Volume

Flow Chart Code: Middle I-F # 27

Behavior: Uses Tbsp. or T. as symbol for tablespoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
Have whole class make up a "crazy" recipe with terrible ingredients and things that don't go together (like chocolate and onions) just for fun, using Tbsp. or T. for tablespoon in it as written on the board.	→ Find recipes with tablespoon abbreviations and re-write using word spelled out.	Collect recipes with Tbsp. or T. as symbol. Collect into a recipe book.

Skill Category: Volume **Flow Chart Code:** Middle I-F # 28

Behavior: Uses tsp. or t. as symbol for teaspoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
Give students a simple recipe with blanks where the word "teaspoon" would fit and have them fill in the correct abbreviation by copying it off the board.	Give students a recipe where multiple choices are given for the abbreviation of the word "teaspoon" and they must choose the correct one.	Use <u>wrong</u> abbreviation for teaspoon in a familiar recipe and have students find mistakes and correct them.

Skill Category: Volume

Flow Chart Code: Middle I-F # 29

Behavior: Uses concept of 1/2 (half) teaspoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
Read a recipe to students which contains 1/2 teaspoon and show them the 1/2 teaspoon measuring spoon.	→	Have secondary students teach younger (Elementary-Middle) students to make something using recipe calling for 1/2 tsp.

Skill Category: Volume **Flow Chart Code:** Middle I-F # 30

Behavior: Uses concept of 1/4 (quarter) teaspoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
Make something from a recipe yourself while students watch. Show them each measuring tool (including 1/4 tsp.) beforehand. Direct them in handing the tools to you as you need them for the recipe and call for them by name.	Make a poster of a recipe using many different measuring instruments (including 1/4 tsp.). Help them tape or attach correct utensil called for beside the ingredient on the poster and put the poster up for display of their work.	Make a poster with <u>many</u> different kinds, shapes, and colors of measuring spoons (including 1/4 tsp.). Have students decide the size of each one (whether Tablespoon size, teaspoon size, 1/4 tsp. size, etc.). Assist them in labeling each spoon. Next, assist them in choosing which recipes call for which spoons from a stack of recipe cards your provide.

Skill Category: Volume

Flow Chart Code: Middle I-F # 31

Behavior: Uses concept of 1/8 tsp. as a "pinch" in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
As students watch you make something from a recipe demonstrate to them that you use 1/8 tsp. where the recipe calls for a "pinch". Explain that this is so you keep a "pinch" always the same size instead of different sizes of "pinches" with your fingers.		

Skill Category: Volume

Flow Chart Code: Middle I-F # 32

Behavior: Uses concept that some items cost an amount of money based on the volume (53¢ per gal. of gas), (65¢ per quart of milk).

Primary Activity	Elementary-Middle	Secondary Activity
Show students several different sizes of containers (large, medium and small). Make sure they are <u>not</u> close in size so students can discriminate easily which is larger. Fill them with something students like and assist them in putting prices on containers for students to buy with behavior modification points, or fill them with something students have made and assist them in pricing containers to be sold to others (cookies, etc.).	Using a grocery ad, allow the students to write prices per volume according to the ad. "How much per unit does each cost?"	Using a grocery ad, allow students to write prices per volume according to the ad. "How much per unit does each cost?"

Skill Category: Volume

Flow Chart Code: Middle I-F # 33

Behavior: Halves recipe for half as much.

Primary Activity	Elementary-Middle	Secondary Activity
	Given a recipe, the student can divide each item in two, to half the recipe. Re-write the recipe in terms of half.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 34

Behavior: Doubles a recipe for twice as much.

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Middle I-F, # 33.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 35

Behavior: Triples a recipe for three times as much.

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Middle I-F, # 33.	

Skill Category: Volume

Flow Chart Code: Middle I-F # 36

Behavior: Name some specific units of other systems of measuring volume, namely metric units.

Primary Activity	Elementary-Middle	Secondary Activity
Discuss with children that people in other places use other systems to measure and introduce just the name "metric" as another way.	After teaching names of metric volume units, the student is asked to complete a ditto sheet of matching and fill-in-blanks.	The student is asked to name specific units. Draws a chart of life-size containers or brings in real containers of metric size.

Skill Category: Volume

Flow Chart Code: Middle I-F # 37

Behavior: Uses concept of peck as unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
Bring in peck baskets, boxes, etc. Tell students what they are called and use them in room to hold blocks, materials, etc. Try to use name of container in everyday use occasionally such as "Bring me the doll in the green peck basket."	→ Discuss things which might be measured by the peck, such as peaches, pears, apples. Show size of peck and collect pictures of things to make a peck.	Visit a grocery store to see a peck of produce (if possible).

Skill Category: Volume **Flow Chart Code:** Middle I-F # 38

Behavior: Uses concept of half-bushel as a unit of measure.

Primary Activity	Elementary-Middle	Secondary Activity
	Students are given bushel baskets, told to fill them with wads of paper. Then the paper wads are divided into half, to show a half-bushel.	Given a ditto sheet of word problems, the student can solve questions about "half-bushel".

Skill Category: Volume

Flow Chart Code: Middle I-F # 39

Behavior: Uses concept that a grocery bag is equal to a half-bushel.

Primary Activity	Elementary-Middle	Secondary Activity
	Given various size grocery bags, the student is asked to discover which is equal to half-bushel.	Given various size grocery bags, the student is asked to discover which is equal to half-bushel.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 1, 2, 3, 4

Behavior: Uses 1/4, 3/4, 1/3, 2/3 cups in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
	Make this recipe: Peanut Butter Bites 1 egg 1/3 cup peanut butter 1 tablespoon soft butter 1/8 teaspoon salt 2 cups sifted confectioners sugar 3/4 cup finely chopped nuts Mix all ingredients except nuts. Shape into small round balls, roll in chopped nuts.	Collect several simple no-cook recipes. Let students select a recipe, bring ingredients and utensils, and make their food. Be sure that recipes contain fraction amounts and that students measure them correctly.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 5

Behavior: Fills marked or unmarked containers to the level of pint or half-pint, for purposes of canning.

Primary Activity	Elementary-Middle	Secondary Activity
		Make bean bags, using rice or dried peas or beans. Measure pint or half-pint to fill bags. Relate pint, half-pint to canning fresh foods.

Skill Category: Volume **Flow Chart Code:** Secondary I-F # 6

Behavior: Uses equivalent that 1 quart = 2 pints in recipes.

Primary Activity	Elementary-Middle	Secondary Activity
Measure 1 quart and make kool-aid or lemonade for class. Pour into 2 pint containers before serving to demonstrate.	→	→

Skill Category: Volume

Flow Chart Code: Secondary I-F # 7

Behavior: Fills containers to the level of quart and half-quart for freezing and/or selling.

Primary Activity	Elementary-Middle	Secondary Activity
		Same as Secondary # 5, but make stuffed frogs or animals with a quart or 1/2 quart of rice or peas.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 8

Behavior: Fills containers to level of gallon and half-gallon.

Primary Activity	Elementary-Middle	Secondary Activity
Make iced tea for a picnic in gallon and half-gallon containers. Discuss how you would use these for holding other things such as oil, gasoline, etc. for other uses.	→	→

Skill Category: Volume

Flow Chart Code: Secondary I-F # 9

Behavior: Uses 1/4 teaspoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
		Same as Middle I-F, # 30.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 10

Behavior: Uses 1/2 teaspoon in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
		Same as Middle I-F, # 29.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 11

Behavior: Uses 1/8 teaspoon (pinch) in a recipe.

Primary Activity	Elementary-Middle	Secondary Activity
		Same as Middle I-F, # 31.

Skill Category: Volume **Flow Chart Code:** Secondary I-F # 12

Behavior: Compares prices per volume of liquid measure (can, quart, bottle, gas, milk).

Primary Activity	Elementary-Middle	Secondary Activity
Bring to class a half-pint, pint and quart of milk. Show and compare prices to determine most economical buy-- 4 half pints -- $1.00 2 pints -- 70¢ 1 quart -- 65¢ *		Given a ditto sheet of comparative prices, the student shall circle the less expensive. Visit a grocery store and allow students to make list of prices per volume on similar items. Then choose which are less expensive per volume.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 13

Behavior: Compares price per volume of dry measure (boxes of cookies, etc.).

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Secondary I-F, # 12.	Same as Secondary I-F, # 12.

Skill Category: Volume

Flow Chart Code: Secondary I-F # 14

Behavior: Determines the better buy between volumes, based on price per volume.

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Secondary I-F, # 12 and 13.	Same as Secondary I-F, # 12 and 13.

Skill Category: Volume **Flow Chart Code:** Secondary I-F # 15

Behavior: Mixes in equal proportions (1 can orange juice plus 3 cans water).

Primary Activity	Elementary-Middle	Secondary Activity
Make frozen concentrated orange juice.	→	→
Make Campbell's soup and mix one can of water to a can of soup. Heat on hot plate or in corn popper.	→	→

Skill Category: Volume

Flow Chart Code: Secondary I-F # 16

Behavior: Mixes one part liquid to three (or other number) parts liquid.

Primary Activity	Elementary-Middle	Secondary Activity
Same as Secondary I-F, # 15.	Same as Secondary I-F, # 15.	

Skill Category: Volume

Flow Chart Code: Secondary I-F # 17

Behavior: Multiplies recipes for larger or smaller amounts in commercial uses.

Primary Activity	Elementary-Middle	Secondary Activity
		After class discussion about recipes as to how you can make one for larger or smaller groups, have class to mix this one:
		Punch (1)
		1 pkg. lime gelatin 4 cups pineapple juice 1 quart ginger ale 4 cups water 1/2 gallon sherbert (this will serve 15 or 20 people.)
		(2) half the recipe.
		(3) double the recipe.

Skill Category: Volume **Flow Chart Code:** Secondary I-F # 18

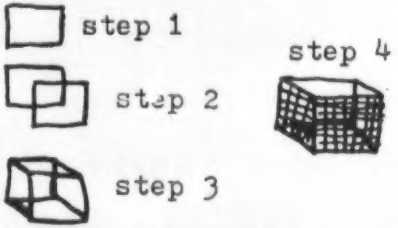
Behavior: Measures out large recipes into container.

Primary Activity	Elementary-Middle	Secondary Activity
		Use recipe for punch from Secondary # 17. Multiply or reduce for larger or smaller amounts (use larger or smaller containers).

Skill Category: Volume

Flow Chart Code: Secondary I-F # 19

Behavior: Describes concept of cubic volume.

Primary Activity	Elementary-Middle	Secondary Activity
		The student is told to measure a box: height, width, depth, and multiply. Cubic inches, cubic feet. (Develop as possible.) Direct students in drawing dimensional boxes with smaller cubic units drawn in, count. 

Skill Category: Volume

Flow Chart Code: Secondary I-F # 20

Behavior: Uses dry and liquid measures for volume. (How and why?)

Primary Activity	Elementary-Middle	Secondary Activity
	Same as Secondary.	Given two sets of measuring devices, the students choose which items would be used for dry and which for liquid.

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